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MEASLES NOT A TRIVIAL DISEASE.

A Report on the Present Epidemic in Brooklyn and its Treatment by the Board of Health, by J. H. RAYMOND, M. D., *Sanitary Superintendent.*

Since January 1, 1880, there have been 1,864 cases of measles reported to the Brooklyn Health Department; this is probably less than half the number which has actually occurred. During the same time there have been 73 deaths from the same disease, while during the entire year 1879, measles caused but 40 deaths; should the present rate of mortality continue throughout the year the record will show 240 deaths from measles for the twelve months of 1880. While measles has thus far caused 82 deaths, there have been but 65 deaths from scarlet fever.

It is a common impression that measles is a trivial disease which every child must have at some period of its life; that the younger he is the more mild the attack, and therefore the sooner he has it the better; that having once been attacked he is protected for the future; that if the disease is not contracted in the usual way, children should be taken to where the disease exists and exposed to it; that all attempts to isolate patients suffering from the affection or to prevent their return to schools or other public assemblages as soon as they are able to go are harsh and arbitrary measures, and not based on good and sufficient reasons; and finally, that as the disease can only be conveyed by the sick person himself, there can be no danger from clothing, bedding, or other material which has been in the same room with the patient or upon his body, and therefore disinfection and fumigation of these articles, and of the rooms occupied by him during his illness, are useless and unnecessary.

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This is, we are satisfied, the popular opinion, and we have reason to believe that some physicians hold the same views. One of these latter, a representative of the class, writes that he thinks measles is a disease that it is rather more desirable to have than to avoid; and he does not suppose that isolation of the patient is at all advisable. From practical local observation and careful investigation of the subject, together with the experience of Brooklyn physicians obtained from their answers to a series of questions sent them by the Board of Health and appended hereto, we believe that the general impressions already referred to are entirely erroneous, and if permitted to go uncontradicted, liable to do great harm and injury, even to the degree of sacrificing human life. Let us take up these points seriatim, and endeavor to ascertain how well founded in fact these popular impressions are:

1. Is measles a trivial disease?

Aitken, writing of measles, says:

"In the year 1824 it was imported into Malta by some children belonging to the 95th regiment, and spread extensively in that island, so that many natives died."

Percival says that in one epidemic 1 person died out of every 40 who had the disease. Watson writes that in one year at the London Foundling Hospital, 1 in 10 died; at another time, 1 in 3. Aitken summarizes the mortality by saying, that—

"The aggregate of these data will give us an average of 1 death in 15. The prospects of recovery are better in the country than in the city, the records showing a greater mortality in the latter than in the former."

Nor is the danger over when the patient has recovered from the measles itself.

Ernest Hart, speaking of measles and whooping-cough, writes:

"These diseases often cause a considerable mortality among children; not directly, but indirectly. They predispose to lung diseases, especially bronchitis and pneumonia, of which the children die."

Aitken says:

"In strumous patients measles may end in the development of miliary tubercles in the lungs. * * * The cough often remains for weeks or months after desquamation is over and grows worse from the most trifling causes. It may depend on simple bronchial catarrh or on severe disease of the lungs. The nature of that disease, however, is not always tubercle, but more often a caseous transformation and disintegration of the products of lobular pneumonia with caseous degeneration of the bronchial glands—one of the most common complications of measles. Croup sometimes supervenes and cuts off young patients. It tends to be of the asthenic type and is not unfrequently preceded by diphtheritic inflammation of the fauces which gradually passes down to the larynx."

The physicians of Brooklyn report 54 cases of measles which have been followed by diphtheria, some of them fatal from this cause:

"Diarrhœa is another danger to be encountered." * * Aitken writes: "If suffered to continue the consequences may be fatal."

"Catarrhal ophthalmia, otorrhœa, swelling of lymphatic glands, if the constitution be strumous, must also be watched for, and if possible prevented."

2. Is measles a disease which attacks a person but once?

On this subject Aitken says that as a general principle the patient is exempt from liability to a second attack, but he also adds that Burserius, Robedieu, Home, Baillie, Rayer and Holland, have all seen instances of a second attack of measles in the same individual.

Ernest Hart writes: "Second attacks are not very uncommon, and third attacks are not unknown."

Austin Flint, Sr., says: "Well authenticated cases in which the disease (measles) has occurred three or even four times have been reported."

The experience of the Brooklyn physicians is very large, and their evidence in this matter, obtained from the circulars before referred to, is very strong. They report that second attacks have occurred *under their own observation* in 210 instances, and third attacks in 7 instances. This shows at once the folly of exposing children to the disease that they may "get it and have it over with," for in the first place there is a possibility of the disease itself proving fatal, or if the children recover from measles they may die from its sequelae, croup, or diphtheria, or diarrhœa, and if they pass through all these dangers they may still have miliary tuberculosis, or some other pulmonary disease, and die from that; but granting that complete recovery takes place, they are not protected from a second attack of the disease, or even from a third. But it is said that if it does occur a second time it is in a very mild form. This brings us to the third question:

3. Are the recurrences of measles modified by the previous attacks?

One hundred and thirty Brooklyn physicians report that the second attacks have not in any degree been milder than the first, but have been unmodified by the previous ones; 36 report that the second attacks have been more severe than the first, and only 30 report the disease as modified in its recurrence. One physician reports a second attack after an interval of 3 years as ending in death.

4. Is measles conveyed by fomites?

This is in a sanitary point of view a most important question to decide. If it cannot be so conveyed then there is no danger from the clothing of the patient, nor from the clothing of those who attend him in his sickness; nor can members of the family or those living in the same dwelling carry the disease to others; nor is there any necessity for disinfection or fumigation of these things, after recovery; but if, on the contrary, the disease is propagated by fomites, all these precautions must be taken if we would prevent the spread of the disease; in other words, the same isolation, disinfection and fumigation should be practiced for measles as in small-pox or scarlet fever.

On this point Niemeyer says:

"From some very striking observations of Panum it has been proved that this contagion in the atmosphere can, without losing its activity, be carried for miles by the body and clothes of healthy persons who have been near a patient, and who are not themselves attacked by the disease. * * The probability of infection during the prodromal stage is supported by the wonderful spread of measles through schools. Great care is usually taken to keep out of the school any children who have not gotten through the desquamative stage, as well as those having any suspicious exanthem; but children with catarrh and cough are allowed to sit on the seat with well children."

Aitken's testimony to the same effect is very striking:

"This disease is also propagated by fomites. The strictest demonstration of this fact is that the disease has been communicated by direct application of substances impregnated with the virus in the attempts to inoculate the disease; it is also proved by the fact that children's clothes, sent home in boxes from schools where the disease has raged, communicate the disease, and also by the same circumstance resulting when susceptible children have lain in the same bed or in the same room shortly after it has been occupied by patients suffering from the disease."

Hart, writing of measles and whooping-cough, says:

"Like the other diseases of the same class, they are eminently communicable by means of infected air and clothing," and he adds: "in the case of measles by means of the contagious discharges."

This opinion is very generally held by the best authorities. Charles Cameron writes of measles:

"It is highly contagious, and the measures necessary to prevent the spreading of it are similar to those to be employed in the case of small-pox."

Eighty Brooklyn physicians believe it to be spread by fomites; 36 do not, while 20 are undecided. One physician writes:

"I am confident that I conveyed the disease by my clothing to one of my children. I called to see a case of measles a couple of blocks from my house; came immediately home, and thoughtlessly picked up my little girl and placed her on my lap before removing my overcoat. I dropped her in a few minutes with the remark that I had just been to a case of measles. In about eleven or twelve days the child was taken with measles. She had not been out of the house for a couple of months. There was no measles in the immediate neighborhood. She had not been in contact with any one having it, and I know of no other way she could have contracted the disease. Dr. C. informs me that he conveyed it to his child in the same manner."

5. Is measles highly contagious?

Cameron says: "It is highly contagious." Hart speaks of it in the same terms. Aitken writes:

"Like scarlatina, measles is thus eminently communicable; and, in like manner, no susceptible person can remain in the same room, or even in the same house, with an infected person without hazard of taking the disease. The infecting distance of this poison (that of measles) must be considerable; indeed it is often very difficult to isolate

the disease in public schools, or other large establishments where it sometimes appears."

Bristow declares that:

"Measles is one of the most virulently contagious of diseases. * * The presence of a case of measles amongst a number of unprotected persons will, as a rule, induce a more certain and wide-spread outbreak of disease than either of the other exanthems would do under similar circumstances. Its contagiousness is fully developed at a very early stage, being at its height on the second, if not on the first, day of invasion, and consequently before the specific nature of the attack is revealed. Hence the great difficulty, if not impossibility, of effectually preventing its spread in households and in schools."

Frederick Roberts writes:

"Measles is decidedly infectious, especially when the eruption is out; and its contagium passes off abundantly in the exhalations of a patient, the air around being thus contaminated. It is also conveyed by fomites. Children have undoubtedly taken the disease from sleeping in a bed or room formerly occupied by a patient suffering from measles."

Austin Flint, Sr., says:

"Rubeola, like scarlatina or variola, is a communicable disease. The infectious miasm is not only received by those brought into close proximity to persons affected with the disease, but it may be transported to a distance by means of fomites. Persons contract the disease from the miasm adherent to the clothes of those who have recently visited rubeolous patients. Physicians may in this way diffuse the disease."***

One hundred and thirty-nine Brooklyn physicians regard it as highly contagious; 1 as moderately contagious, while 15 report it as not highly contagious; 60 of these regard it as more contagious than scarlet fever, 46 as less contagious, and 45 as equally contagious.

In speaking of contagious diseases, measles included, Hart says:

"All these diseases are propagated more than anywhere else at schools; and during epidemics the greatest precaution ought to be taken in sending children to schools, especially as there is every probability that some of these diseases, if not all of them, are contagious during the period of incubation."

In view of the facts that measles is at the present time epidemic in Brooklyn; that it has already in 1880, as stated above, caused 73 deaths, while during the whole of 1879 there were but 40 deaths; that it is "one of the most virulently contagious of diseases" (Bristow); that "its contagiousness is fully developed at a very early stage of the disease * * before the specific nature of the attack is revealed" (Bristow); that it is conveyed by fomites; that "persons contract the disease from the miasm adherent to the clothes of those who have recently visited rubeolous patients" (Flint); or "from clothes sent home in boxes from schools where the disease has raged" (Aitken); "that no person can remain in the same room, or even in the same house, with an infected person,

without hazard of taking the disease" (Aitken); that one attack does not render a person non-susceptible; "that the measures necessary to prevent the spreading of it are similar to those to be employed in the case of small-pox" (Cameron); in view of all these facts, the Board of Health, under the Code of Sanitary Ordinances, directs the exclusion from school of all children living in a house where measles exists, and prohibits their return until the case is well, and the premises fumigated with sulphur.

The following is a series of questions sent to the physicians of Brooklyn by the Board of Health, and an analysis of 155 responses received thereto:

Is measles, in your opinion, highly contagious?

139 physicians answer, Yes. 15 answer, No. 1 answers, moderately so.

Is it, in your opinion, more or less contagious than scarlet fever?

60 answer, More. 46, Less. 45, Equally contagious.

Is it, in your opinion conveyed by fomites?

88 answer, Yes. 36, No. 20 Undecided.

Is measles, at the present time, in your practice, unusually malignant?

14 answer, Yes. 124, No. 12, Severe.

How many cases have you had in which diphtheria has supervened upon measles?

54 such cases are reported.

In how many instances, *under your own observation*, has measles attacked the same person more than once? or more than twice? and at what intervals?

210 second attacks are reported, and 7 third attacks. The intervals vary between 2 weeks and twenty-eight years; the usual interval being about 3 years.

Have these recurrences been severe, or have the prior attacks apparently modified them?

36 answer, Recurrences more severe than the first attacks. 130, Recurrences have not been modified. 30, Recurrences have been modified.

COMPLICATIONS IN 59 DEATHS REGISTERED AS MEASLES.

Nervous.		Pulmonary.		Intestinal.	
Meningitis and Hydrocephalus	6	Congestion of the lungs	3	Dysentery	2
Convulsions	13	Pulmonary Apoplexy	1		
Congest'n of the brain	2	Bronchitis	9		
		Pneumonia	18		
		Laryngitis	5		
Total 59	21		36		2

In addition to the above, 14 deaths were reported as due to measles without any complications.

The following deaths not being caused directly by either measles or its complications, were not registered as due to measles, and do not appear in the above table, although they were certified by the attending physicians as having measles as an intercurrent affection :

Meningitis, 1; convulsions, 4; pneumonia, 2; bronchitis, 2; diphtheria, 4; pulmonary congestion, 1; dysentery, 1; scarlet fever, 2—total, 17.

ACTION OF THE BOARD OF HEALTH.

Measles being at the present time so prevalent in the City of Brooklyn, and its mortality since January 1st, 1880, so great, the Board of Health has included this disease in the same category with scarlet fever and diphtheria, and requires the following action:

1. Reports to be made to the Health office by physicians, of all cases coming under their care.

2. The exclusion of the sick and of others residing in the same house, from the schools of the city, both public and private, until a permit for their return is obtained from the Board of Health.

3. These permits to be given when the patient is no longer in condition to spread the disease, and when the rooms, clothing, and other infected materials have been properly fumigated.

4. The fumigation prescribed by the Board of Health is by the burning, for five hours, of sulphur, one pound to each thousand cubic feet of space to be fumigated, the apartment being tightly closed.

5. Certificates of physicians that these requirements have been fulfilled will be sufficient evidence, and on their presentation to a sanitary inspector or at the office of the Board of Health, the school permit will be at once issued.